

REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested in view of the amendments made above and the remarks that follow.

Replacement formal drawings are submitted herewith under cover of a separate letter to the Drawing Review Branch, with the sheets labeled "Replacement Sheets".

The present invention comprises a device that extinguishes a candle flame and prevents smoking of the candle wick by directing a short burst of non-flammable fluid, e.g., water, against the flame. The fluid is discharged in a quantity sufficient only to extinguish the flame and prevent smoking of the wick, but insufficient to wet a surrounding surface. In addition, the pressure of the spray is in a range to avoid spattering of molten candle wax when the spray is directed against a candle flame. These are important features of the invention, since candles frequently are supported on surfaces, e.g., tables and other fine furniture that would be damaged by simply spraying water or water droplets against the flame. This is perhaps one reason conventional candle snuffers are designed to be placed on the candle flame to smother it, without spraying any water. Most candles, especially in households, are extinguished simply by blowing the flame out. This normally results in substantial smoking of the candle, since the wick continues to burn and produce smoke after the flame is extinguished. The present device functions entirely differently than conventional candle snuffers, in that it relies solely upon a short burst of non-flammable fluid directed against the flame to extinguish the flame and cool the wick to prevent production of smoke. In the embodiment that uses water as the non-flammable fluid, the amount of water discharged is insufficient to wet a surrounding surface, and the pressure of discharge is not so great as to cause spattering of the molten wax. In use, the device of the invention is held in spaced relationship to the candle and candle flame. In the specific examples disclosed, the quantity of water discharged during a dispensing cycle is from about 0.08 ml to about 1.0 ml, the particle size is from about 1.0 micron up to about 1,000 microns (preferably 65 to 70 microns), and the discharge pressure is from about 25 psi to 100 psi. Further, in the elected embodiment the device comprises a finger pump.

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Claim 1 calls for a device for extinguishing a candle flame, comprising a container for holding a quantity of water, and means associated with the container for discharging under pressure during a dispensing cycle *up to about 1.0 ml* of the water as an aerosolized, fog-like spray of water droplets having a size of from about 1.0 to about 1000 microns distributed over a steep bell curve, and dispersed in a filled conical spray pattern sufficient to encompass the flame of a candle to extinguish the flame *without requiring contact between the device and the candle or the candle flame*, and *at a pressure of from about 25 psi to about 100 psi to avoid spattering of molten candle wax*. This claim clearly describes a structure and function that are not found in the references of record, whether the references are considered individually or in combination.

Claims 1, 3-5, 7, 18, 25 and 26 stand rejected under 35 USC 103(a) as obvious over Harrison modified by Yen and Goeren.

Harrison discloses a candle extinguishing device that has a bell-shaped housing on the distal end for placement over a candle flame to snuff the flame in the same manner as a conventional candle snuffer (Col 2, lines 14-17; Col 3, lines 22-24 and lines 58-62). Thus, the flame is primarily extinguished by the “snuffing” or “smothering” action of the housing 24. The aerosol water mist is sprayed onto the flame to distribute the mist about the wick of the candle primarily to reduce the production and dispersion of smoke following flame extinguishment, presumably by cooling the wick. Although the mist assists in extinguishing the flame, its primary function is to cool the wick after flame extinguishment and thereby prevent the production of smoke.

In addition to those features claimed herein that the examiner acknowledged are missing from Harrison, Harrison also fails to disclose or suggest extinguishment of a candle flame without requiring contact between the extinguishing device and the candle, or discharging a quantity of water sufficient to extinguish the flame but insufficient to wet a surrounding surface, or discharging the water at a pressure that will not cause spattering of the molten candle wax.

Harrison does disclose a candle-extinguishing device, but that device has an entirely different structure and operates completely differently than applicant’s claimed device.

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Yen discloses an apparatus for extinguishing grease fires in a kitchen, and to that end discharges a jet stream (Abstract, line 7) of water mist at a high discharge pressure of from about 125 psi to 250 psi, typically from 150 to 250, and preferably above 175 psi (Col 2, line 48). The duration of time over which water is discharged exceeds several seconds (up to 19 seconds in the examples given), with the quantity of water being discharged exceeding 1 liter in the examples given (1000 times the amount of water discharged in the present invention).

About the only part of the disclosure of Yen that approaches any of the claimed features of the present invention is the disclosure of a water droplet size of from 400 microns to 1000 microns. Even this range is outside the range claimed by applicant, which is up to about 100 microns, and preferably 65 to 70 microns.

Yen is directed to structure and function that are entirely different from applicant's claimed invention, and it is not apparent how any of the teachings of Yen could be applied to Harrison. The general statements in Yen that "optimum parameters" could be selected to produce a desired result would appear to relate to parameters operable in the Yen environment, and not in the Harrison environment. The mere fact that both Yen and Harrison relate to devices for extinguishment of flames does not make them comparable devices, and modification of either to incorporate the features of the other likely would render either device inoperable for its intended purpose.

There simply is no suggestion or motivation in either Yen or Harrison for making the proposed modifications, and even if the proposed modifications were made the claimed invention would not result.

Similarly, there is no motivation or suggestion in Harrison, Yen or Goeren of applying the teachings of Goeren to any of the other references to produce the claimed invention. Goeren relates to a device for producing an aromatic spray (an "air freshener") and is not concerned with any of the factors involved in extinguishing a flame, much less extinguishing a candle flame without wetting the surrounding surface or causing spattering of molten candle wax. The

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“blossom” of spray mentioned in column 2, line 15, of Goeren is not necessarily the same as the filled conical spray produced and claimed in applicant’s invention.

The patent to Smith (2785556) noted by the examiner utilizes a conventional snuffer 40 to extinguish the candle flame. The only liquid supplied by the Smith device is a combustible liquid such as lighter fluid, applied to the wick of a previously extinguished candle to make it easier to light.

It is respectfully submitted that it would not be obvious to modify Harrison in view of Yen and/or Goeren to produce the claimed invention.

Modification of Harrison to eliminate the snuffer 24 and its intended function, and/or to discharge a quantity of water sufficient to extinguish the candle flame but not wet a surrounding surface, thereby obviating the need for the snuffer 24, would change the principle of operation of Harrison. Moreover, there is no teaching in the prior art of record of *any* type of flame extinguisher that discharges just enough water to extinguish the flame but not wet a surrounding surface.

In summation, none of the cited references, whether considered singly or in combination, teach the present invention or suggest how any of them could be modified in view of the other to produce the present invention as claimed.

To establish obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)

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If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, or require a substantial reconstruction and redesign of the elements shown in the primary reference, then the teachings of the references are not sufficient to render the claims prima facie obvious. *In re Ratti*, 270 F.2d 810, 122 USPQ 349 (CCPA 1959).

An early and favorable action on the merits is respectfully requested.

Respectfully submitted,
Dennis H. Lambert & Associates



Dennis H. Lambert
Reg. No. 25,017

DHL:cal

Dennis H. Lambert & Associates
7000 View Park Drive
Burke, Virginia 22015
Tel: 703-451-1227
Fax: 703-451-1297